WHAT IS CLAIMED IS:

1. A method for packet data serving node redundancy in an Internet Protocol network, comprising the steps of:

providing an access node comprising a plurality of N+1 packet data serving nodes and at least one system manager;

selecting one packet data serving node as a standby for the remaining N active packet data serving nodes;

receiving from a radio node a registration request to establish a communication session between a packet data serving node and a mobile node;

selecting an active packet data serving node;

sending a registration reply message from the selected packet data serving node (PDSN) to the radio node;

establishing a communication session between the mobile node and the selected PDSN;

transmitting state from the selected PDSN to the standby PDSN;

periodically updating state from the selected PDSN to the standby PDSN; and

transferring the communication session to the standby PDSN upon failure of the selected PDSN.

2. A method for packet data serving node redundancy in an Internet Protocol network as defined in claim 1 wherein each active PDSN, upon selection, transmits non-recoverable state data to the standby PDSN and periodically updates non-recoverable state data to the standby PDSN.

3. A method for packet data serving node redundancy in an Internet Protocol network as defined in claim 1 wherein the step of transmitting state includes transmitting data for a Radio Network – Packet Data Serving Node (RP) interface state.

4. A method for packet data serving node redundancy in an Internet Protocol network as defined in claim 1 further including the step of completing IP Control Protocol (IPCP) negotiation between the selected PDSN and the mobile node and wherein the step of periodically updating includes the steps of:

transmitting a Point to Point Protocol (PPP) state; and

transmitting an Authentication, Authorization and Accounting (AAA) profile.

5. A method for packet data serving node redundancy in an Internet Protocol network as defined in claim 4 wherein the step of periodically updating further includes the step of transmitting a Compression Control Protocol (CCP) state.

6. A method for packet data serving node redundancy in an Internet Protocol network as defined in claim 4 wherein the step of transmitting the PPP state comprises the steps of:

transmitting a Link Control Protocol (LCP) state;

transmitting an authentication protocol state; and,

transmitting an IPCP state.

7. A method for packet data serving node redundancy in an Internet Protocol network as defined in claim 4 wherein the mobile node is a Mobile IP application and wherein the step of transmitting the PPP state comprises the steps of:

transmitting a Link Control Protocol (LCP) state; and,

transmitting an IPCP state.

8. A method for packet data serving node redundancy in an Internet Protocol network as defined in claim 6 wherein the mobile node is a MPA application and further includes the steps of:

initiating a proxy MIP session between the selected PDSN and a home agent; and

re-negotiating IPCP with the mobile node to transmit the Domain Name System addresses;

and the step of periodically updating further includes the steps of:

transmitting the MIP state after initiating the proxy session; and

transmitting the PPP state after re-negotiating the IPCP.

9. A method for packet data serving node redundancy in an Internet Protocol network as defined in claim 1 wherein the step of periodically updating further includes the step of synchronizing Usage Date Record (UDR) information.

10. A method for packet data serving node redundancy in an Internet Protocol network as defined in claim 9 wherein the step of synchronizing UDR information is triggered by an update timer.

11. A method for packet data serving node redundancy in an Internet Protocol network as defined in claim 7 further comprising the steps of:

sending an agent advertisement from the selected PDSN to the mobile node;

updating the MIP state on the standby PDSN;

sending a MIP registration request (RRQ) from the mobile node

completing access request and access reply communication between the selected PDSN and a Home Authentication, Accounting and Authorization server (HAAA);

sending a MIP RRQ from the selected PDSN to a home agent;

receiving an MIP registration reply (RRP) from the home agent to the selected PDSN;

transmitting the MIP RRP from the selected PDSN to the mobile node; and

updating the standby PDSN with the MIP state.

12. A method for packet data serving node redundancy in an Internet Protocol network as defined in claim 11 further comprising the steps of:

conducting MIP re-registration periodically during the call; and

updating the standby PDSN with the MIP state.

13. A method for packet data serving node redundancy in an Internet Protocol network as defined in claim as defined in claim 1 wherein the step of periodically updating is triggered by any one of a plurality of predefined update triggers.

14. A method for packet data serving node redundancy in an Internet Protocol network, comprising the steps of:

providing an access node comprising a plurality of N+1 packet data serving nodes and at least one system manager;

selecting one packet data serving node as a standby for the remaining N active packet data serving nodes;

receiving from a radio node a registration request to establish a communication session between a packet data serving node and a mobile node;

sending a registration reply message from the first packet data serving node to the radio node;

establishing a communication session between the mobile node and the packet data serving node; and

transmitting selected non-recoverable call information data from the selected packet data serving node to the standby packet data serving node responsive to any one of a predetermined set of update triggers.

15. A method for packet data serving node redundancy in an Internet Protocol network as defined in claim 14 wherein the update triggers are Radio Network PDSN (RP) interface triggers and the call information data includes an RP interface state.

16. A method for packet data serving node redundancy in an Internet Protocol network as defined in claim 14 wherein the update trigger is completion of the Point-to-Point Protocol and the call information data includes Link Control Protocol (LCP) state and authentication state.

17. A method for packet data serving node redundancy in an Internet Protocol network as defined in claim 16 wherein the call information data further includes Authentication, Authorization and Accounting (AAA) user profile data.

18. A method for packet data serving node redundancy in an Internet Protocol network as defined in claim 14 wherein the mobile node is a Mobile IP (MIP) application and the trigger is a MIP registration event and wherein the call information data includes MIP state.

19. A method for packet data serving node redundancy in an Internet Protocol network as defined in claim 18 wherein the call information data further includes Authentication, Authorization and Accounting (AAA) user profile data.

20. A method for packet data serving node redundancy in an Internet Protocol network as defined in claim 14 wherein the trigger is expiration of a PDSN update timer and the call information data includes user data.

21. A method for packet data serving node redundancy in an Internet Protocol network as defined in claim 20 wherein the call information data further includes RP state.

22. A method for packet data serving node redundancy in an Internet Protocol network as defined in claim 20 wherein the mobile node is a MIP application and the call information data further includes MIP state.

23. A method for packet data serving node redundancy in an Internet Protocol network as defined in claim 14 wherein the call update triggers include call termination triggers.

24. A method for packet data serving node redundancy in an Internet Protocol network as defined in claim 23 comprising the additional step of deleting call state information in the standby PDSN for a terminated call upon receiving a termination trigger.

25. A method for packet data serving node redundancy in an Internet Protocol network as defined in claim 1 wherein the step of transferring the communications session includes the steps of:

detecting failure of the selected PDSN;

deleting call information in the standby PDSN for all PDSNs other than the failed selected PDSN;

assuming communications with the mobile node using the standby PDSN.

26. A method for packet data serving node redundancy in an Internet Protocol network as defined in claim 25 wherein the step of detecting failure comprises the steps of:

receiving a heart beat signal from the selected PDSN by the system manager;

detecting a loss of the heart beat signal;

notifying the standby PDSN of active status with address information of the failed selected PDSN; and

notifying the remaining active PDSNs of reassignment of the standby PDSN to active status.

27. A method for packet data serving node redundancy in an Internet Protocol network as defined in claim 25 wherein a PDSN to PDSN (P-P) tunnel has been established, the step of assuming communications includes the step of forcing a new PPP negotiation by the mobile node.

28. A method for packet data serving node redundancy in an Internet Protocol network as defined in claim 27 wherein the failed PDSN is an anchor PDSN in the P-P tunnel and the step of forcing a new PPP negotiation comprises the steps of:

sending a P-P registration update to a target PDSN; and,

sending a message requiring renegotiation from the target PDSN to the mobile node.

29. A method for packet data serving node redundancy in an Internet Protocol network as defined in claim 27 wherein the failed PDSN is a target PDSN in the P-P tunnel and the step of forcing a new PPP negotiation comprises the steps of:

sending a message requiring renegotiation from the standby PDSN to the mobile node; and,

renegotiating the PPP to establish a new P-P tunnel.

30. A method for packet data serving node redundancy in an Internet Protocol network as defined in claim 26 comprising the additional steps of:

detecting a heartbeat signal for a replacement PDSN by the system manager;

assigning the replacement PDSN as a standby PDSN;

notifying the active PDSNs of the standby PDSN assignment; and,

transmitting state updates from the active PDSNS to the standby PDSN for each new call session established.

31. A method for Point to Point Protocol communications elements redundancy in an Internet Protocol network comprising the steps of:

providing a communications node comprising a plurality of N+1 elements and at least one system manager;

selecting one element as a standby for the remaining N active elements;

establishing a communication session with a PPP client using the selected element;

transmitting state from the selected element to the standby element;

periodically updating state from the selected element to the standby element; and

transferring the communication session to the standby element upon failure of the selected element.